



Renewable Energy Perspectives

August 2005

GSA Energy Center of Expertise

*“Pathways to Profitability through Effective Energy
Management”*

Preface

- The Energy Policy Act of 2005 will provide the primary policy guidance with respect to renewable power as we move forward – there will be policy changes
- GSA's renewable purchases to date have largely been driven by the energy efficiency Btu reduction credits given to renewable purchases
- It is unclear whether such reduction credits for renewable purchases will continue
- A listing of GSA's current renewable power purchases (approx. 15% of total electric use) follows on next 2 slides



RENEWABLE ENERGY CERTIFICATE (REC) CONTRACTS						
<u>REGION</u>	<u>CONTRACTOR</u>	<u>TERM</u> <u>Mos.</u>	<u>Option</u> <u>Years</u>	<u>TOTAL</u> <u>MWH</u>	<u>\$/MWH</u>	<u>RESOURCE</u> <u>TYPE</u>
New England (1)	3 Phases	12	2	25,402	\$1.0000	geothermal
Mid-Atlantic (3)	Calpine Energy Svc	12	1	50,000	\$0.4000	geothermal
Great Lakes (5)	3 Phases	12	0	60,000	\$0.4500	geothermal/
Heartland (6)	Calpine Energy Svc	12	1	45,000	\$0.3500	geothermal
Greater Southwest (7)	Calpine Energy Svc	12	1	26,000	\$0.6000	geothermal
Pacific Rim (9)				11,786	\$4.0000	
Northwest/Arctic (10)	Calpine Energy Svc	12	1	15,000	\$0.3500	geothermal
NCR (11)	Unicoi Energy Svc	12	0	75,000	\$0.4000	biomass
NCR (11)	Calpine Energy Svc	12	1	27,500	\$0.3500	geothermal
NCR (11)	Community Energy	37	0	11,216	\$11.5000	PJM new wind
(funded by EPA)						
NCR (11)	Pepco Energy Svcs	37	0	33,649	\$7.4000	PJM new biomass
(funded by EPA)						
World Bank	Wind Current	12	2	101,762	\$1.0000	90% wind/10%
						low impact hydro
Commerce	Calpine Energy Svc	12	1	85,715	\$0.3500	geothermal
DOE	Calpine Energy Svc	12	1	37,000	\$0.3500	geothermal
				605,030	\$1.1875	



DELIVERED RENEWABLE POWER CONTRACTS					Premium	
<u>REGION</u>	<u>CONTRACTOR</u>	<u>TERM</u> <u>Mos.</u>	<u>Option</u> <u>Years</u>	<u>TOTAL</u> <u>MWH/YR</u>	<u>Unknown</u> <u>\$/MWH</u>	<u>RESOURCE</u> <u>TYPE</u>
Northeast & Caribbean	Constellation NE & Pepco Energy Svcs	36	0	92,000		wind/biomass
Mid-Atlantic (3)	Green Mountain	36	0	3,000		wind/biomass
				95,000	\$0.0000	



What is Renewable Power?

- Renewable power is solar, wind, geothermal, biomass power, and now some hydro power
- DOE is responsible for the renewable definition
- Biomass is the broadest renewable category and includes, but is not limited to:
 - Landfill Gas
 - Municipal Waste-to-Energy
 - Wood Chips/Animal Waste to Energy
 - Crop Based Fuels



What is Green Power?

- Green power is a subset of renewable power
- The U.S. Federal Government does not define what green power is via legislation or E.O.
- EPA is responsible for the Green Power Partnership and has adopting green power definitions developed via a consensus approach (Green-e)
- Green-e's approach recognizes regional variation



Renewable vs. Green

- Hydro – some hydro will be considered renewable under Act (mainly incremental large/small), but small, low impact hydro considered green
- Biomass – waste (i.e. trash) to energy not considered green
- Biomass – U.S. Govt. defines biomass broadly and with no emissions criteria
- Biomass – Green-e has regional variation and regional emissions criteria
- Green-e has additional marketing requirements
- Green-e performs auditing function



Renewable Procurement Issues

- Restricting competition can be done but such restriction cannot be done for arbitrary reasons
- Renewable Energy Certificates (RECs) as significant/preferred way of renewable procurement as opposed “delivered” renewable power
- Third party verification/certification role, who performs it, and the specific items to be verified



Geography

- When buying “delivered” renewable power the power has to be close to your location
- When buying RECs, the REC can come from anywhere
- 2005 Act does not appear to favor local over national resources
- “National” REC products are less expensive than Eastern REC products
- No real policy on the issue



Resource Preference

- For its own procurements, GSA has shifted to a product neutral approach as the driving force in our buys has been meeting the E.O. 13123 goals
- The 2005 Act does not appear to favor one renewable resource over another
- Agencies with differing goals may be more restrictive



Renewables as Price Hedge

- Renewable power generally has no fuel cost component
- Renewable resource developers/owners are sometimes seeking long-term supply arrangements to obtain financing or pricing stability
- There may be opportunities for buyers of renewable power to enter into longer term REC or supply arrangements where the buyer provides a guaranteed purchase price and the seller provides renewable power at a fixed price over a long term
- We firmly believe that prices for all forms of energy are going to move higher and be more volatile

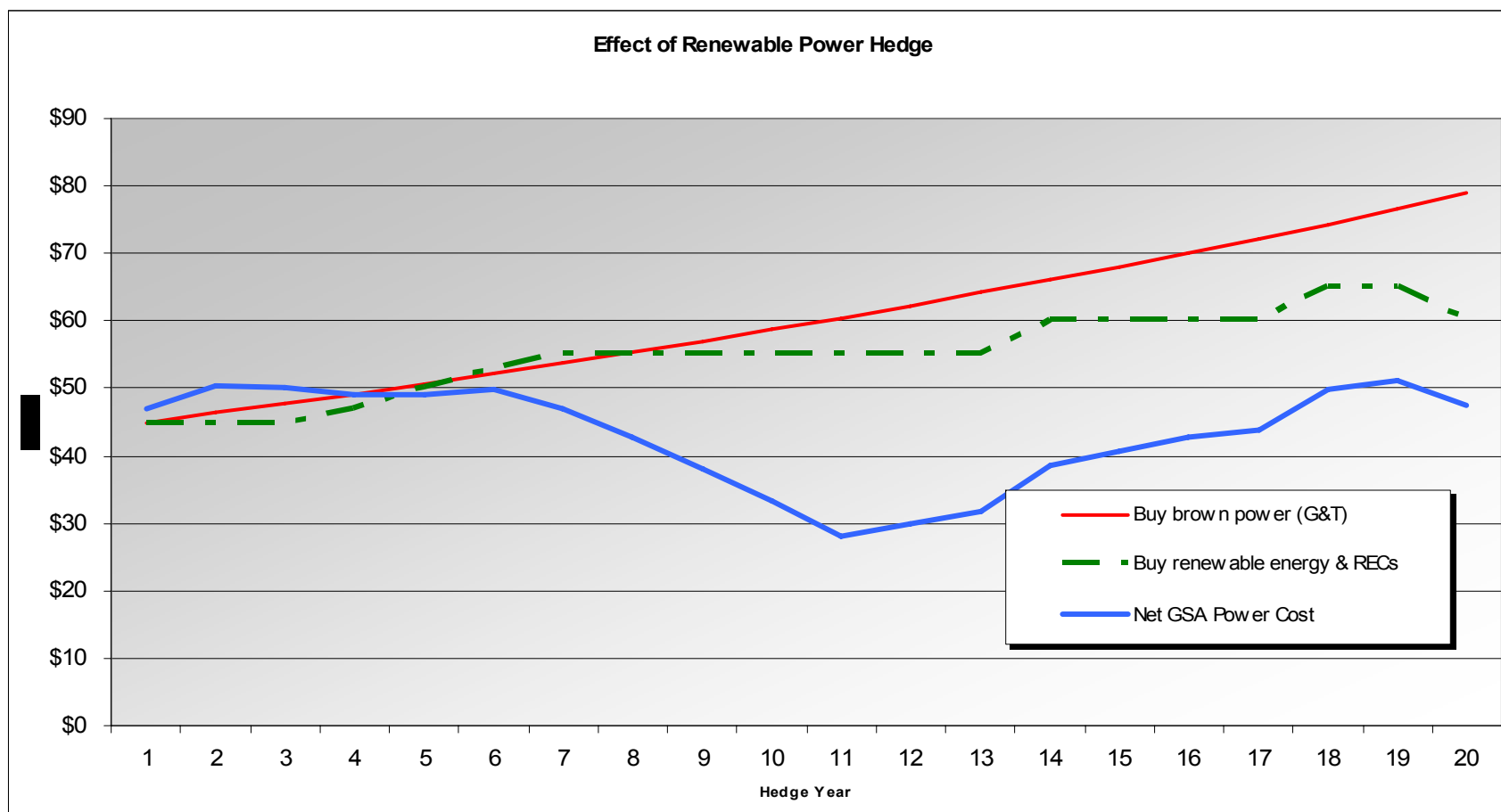


“Hurdles” to Long Term Contract

- Term – while 10 years could work, it is really too short to be fully effective so authority for a longer term contract would be needed (suggest 20 years)
- RECs – should agencies keep the RECs? Sell them? Swap higher valued RECs for lower valued RECs? What to do with any money received (credit accounts)?
- “Delivered” renewable power – delivery of renewable output acts like a block purchase – will need to balance around renewable “blocks”; Balance with hourly energy? How to bill? How to administer?
- Illustration of future price changes attached



Projected Prices Over Time



Summary

- GSA will continue to explore the potential of purchasing renewables under long-term contracting arrangements
- The Energy Policy Act of 2005 will shape GSA's renewable purchasing direction moving forward
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